DOCUMENT RESUME

ED 081 501 24 PS 006 784

AUTHOR	Datta, Lois-ellin
TITLE	New Directions for Early Child Development Programs: Some Findings from Research.
INSTITUTION	ERIC Clearinghouse on Early Childhood Education, Urbana, Ill.
SPONS AGENCY	National Inst. of Education (DHEW), Washington, D.C.; Office of Child Development (DHEW), Washington, D.C.
PUB DATE	Oct 73
NOTE	54p.
AVAILABLE FROM	College of Education Curriculum Laboratory, University of Illinois, 1210 West Springfield Avenue, Urbana, Illinois 61801 (Catalog No. 1300-50, $1.70)
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Achievement; Cognitive Development; Compensatory Education; *Early Childhood Education; *Early Experience; *Educational Innovation; Educationally Disadvantaged; Home Visits; *Literature Reviews; Motor Development; Parenthood Education; Prenatal Influences; Preschool Learning; *Preschool Programs; Social Influences
IDENTIFIERS	Planned Variation Study; *Project Head Start

ABSTRACT

Information on the preschool years, which has emerged from the pioneering studies and programs of the 60's, is reviewed and interpreted with regard to implications for current and future policy. Limitations of knowledge in this area are noted and attributed to inadequacies in the related research. Four general findings are reviewed and discussed: (1) The importance of the first 6 years of life incorporates research on prenatal development and infants' motor, cognitive, and linguistic abilities. (2) There exists a diverse technology for teaching families of young children. Included are an overview of experimental programs concerned with cognitive development and school achievement, a review of the Head Start literature, and a tentative comparison of the relative effectiveness of different approaches to early experience derived from the Planned Variation Study. (3) Continuity of human development is vital to maximize program effects. Methods are suggested that might provide continuity between preschool and primary school experiences. (4) The importance of multiple influences on children are reaffirmed. There is a need for alternatives that strengthen the family as the primary childrearing agent, instead of encouraging families to place their children in day care. (DP)

FILMED FROM BEST AVAILABLE COPY

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED 081501

NEW DIRECTIONS FOR EARLY CHILD DEVELOPMENT PROGRAMS

Some Findings from Research

Lois-ellin Datta

National Institute of Education

ERIC Clearinghouse on
Early Childhood Education
805 West Pennsylvania Avenue
Urbana, Illinois 61801

PS 006784

Available from the

College of Education Curriculum Laboratory
University of Illinois
1210 West Springfield Avenue
Urbana, Illinois 61801

Price: $1.70 Catalog No.: 1300-50

October 1973

This paper was produced pursuant to a contract with the National Institute of Education, partially supported by a contract with the Office of Child Development. Points of view or opinions stated do not necessarily represent official Government position or policy.

NEW DIRECTIONS FOR EARLY CHILD DEVELOPMENT PROGRAMS

Some Findings from Research*

1. Background

In the early 1960's, three influential books created a climate of concern spectacularly favorable to the expansion of early child development programs. Harrington's The Other America (1962) revealed that in an affluent society millions of Americans were trapped in a cycle of poverty, unlike the upwardly mobile poor of the immigrant generations. Academic failure, evident even when children of poverty entered school, forged one seemingly unbreakable link in the heavy chain. Second, Hunt's Intelligence and Experience (1961) presented massive evidence indicating that intelligence, far from being fixed by heredity, was substantially influenced by environment. Hunt described the plight of children such as those observed by Dennis in a Teheran orphanage, retarded even in their psychomotor development by lack of appropriate environmental stimulation. More hopefully, Hunt reported the effectiveness of later environmental intervention in remedying early childhood retardation associated with unfavorable experiences, (e.g., Skeels, 1940). Third, Bloom, reviewing hundreds of studies, concluded that the early childhood years, relatively neglected in theory and practice, marked the period of most rapid intellectual growth, and

---

*Invited address, Child Development and Child Psychiatry Conference, University of Missouri--Columbia Medical Center, October 4-5, 1972. I am indebted to the knowledge, sound political sense, and dedication to children of Urie Bronfenbrenner, Richard E. Orton, and Charles Gershenson, among many others whose insights and critisms have contributed to my own thinking. Sandra Mitchell's editorial skill and logic are gratefully acknowledged.

thus were particularly significant for development (1964).[1/]

These books and others stimulated researchers such as Gray, Weikart, Kirk, Strodbeck, and Deutsch to initiate early intervention programs to prevent mental retardation in children of low income families. Table 1 (following page) summarizes some of these studies and their findings.

During the past fifteen years, scores of other early child development programs have been established, a professional field has emerged, and states, following the lead of the Federal government, are establishing offices of child development. In at least one state, legislation requiring mandatory education for 3- to 4-year-old children has been introduced.

Many of the early childhood intervention programs (particularly those directed to preventing mental retardation), the psychological theories on which they are based, and the political-social view they represent[2/], have received both loud acclaim and severe criticism, neither of which appears to be entirely merited.

The existing programs are deficient if judged by the criteria of economic feasibility and uniformly high benefits (both immediate and long-term). However, the programs have been valuable guides to better approaches to early childhood education and program feasibility.

The current conflict between the widespread demand by parents for early childhood education and scholarly rejection of preschool center-based intervention as an economically worthwhile social action program for all (e.g., Moore et al., 1972) may be resolved if present programs, both operational and experimental, are regarded as guides to increasingly feasible and effective action on behalf of children.

Table 1

MORE RECENT RESEARCH DEVELOPMENTS IN EARLY EDUCATION*
(Selected Programs)

Investigator or Program	Study Group	Programmatic Focus	Program Effects: Experimental Group IQ	Program Effects: Contrast Group IQ
Skeels: 1939, 1960	Mentally retarded infants	Radical and sustained intervention	102 (after 2 yrs)	66 (after 2 yrs)
Dawe: 1942	Twenty-three orphanage children	Fifty hours language tutoring and excursions	80.6 to 94.8†	81.5 to 79.5
Kirk: 1958 Community group	Mentally retarded	Language intervention	72.5 to 83.7	75.8 to 75.2
Institutionalized group			61.0 to 73.0	57.1 to 49.9
Strodtbeck: 1958	Low income children‡	13-week Reading Readiness		
		Structured curriculum	94.3‡	89.0‡
		Permissive curriculum	86.0‡	85.0
Deutsch: 1962	Low income	Enrichment nursery (innovations)	98.9 to 103.9†	99.0 to 92.0
DARCEE: 1962	Low income	Enrichment-parent education	88.5 to 95.5†	86.7 to 81.7
Weikart:				
Wave 0: 1962-63	Low income and mentally retarded	Cognitive (Piaget)	78.4 to 91.1†	75.0 to 82.2
Wave I: 1962-63			79.1 to 90.6†	78.3 to 77.8
Wave II: 1963-64			80.5 to 100.9†	79.4 to 82.9
Wave III: 1964-65			79.6 to 94.4†	81.0 to 81.2
Head Start: 1965 on	Largely low income			
Summer		Began as enrichment nursery	Improved but below norms	
Full year		Multiple approaches	Improved but below norms in most cases	
Bereiter-Englemann: 1964	Low income	Prescripted language development	low 90s to over 100	No control group
Risley: 1966	Low income	Behavior modification	Improved	No data
Sprigle: 1965	Low income and lower middle income	Learning to learn	104 to 112	Traditional group 90 to 107 No Preschool 83
Educational Development Center	Low income	Discovery	Data unavailable	
Bank Street School	Low income	Discovery	Data unavailable	
Karnes, Teska, Hodgins	Low income	Psycholinguistic	96.0 to 110.3	94.5 to 102.6

* Sources of information on which the table is based are found in the text, along with name of investigator or program.

† Observed difference between groups is significant.

‡ Children tested three months before preschool as own controls.

This table copied directly from Stanford Research Institute Report, 1971, Implementation of Planned Variation in Head Start: Preliminary Evaluations of Planned Variation in Head Start According to Follow Through Approaches (1969-1970) Interim Report: First Year of Evaluation, Part II. ED 052 844.

Central to this thesis are two distinctions. One is the distinction between early childhood education in the sense of extending first grade objectives and methods down to three year olds, and early childhood development, which encompasses diverse means of meeting the needs of young children and their families. The second is distinction between the values of early child development programs and the improvement of educational practices as needed, and attempts to justify such efforts as economically significant enterprises that will help solve pressing social problems such as inequality of status and income.

As Table 2 indicates, both Bronfenbrenner (1972) and Jencks et al. (1972) conclude that early intervention and compensatory programs alone will contribute little to eliminating poverty and inequality. Both would argue for the support of programs on behalf of children in their own right and for examination of the evidence in light of what will best help meet broad developmental needs.* From the surge of early childhood research and intervention activity, much of it supported by Project Head Start, have emerged findings of significance as guides to such a policy.

1. The importance of the period from birth through six has been verified by studies of nutrition, of the infant's capacity for learning, and of the early development of basic social as well as cognitive and linguistic processes. This verification is balanced, however, by increasing evidence of substantial plasticity during later childhood, adolescence, and adulthood.

2. A diverse technology for teaching very young children and their families now exists. The knowledge base available, while incomplete, is solid enough to provide a foundation for program development. Thus, one task of the 70's is research utilization: finding practical ways of applying early education curricula and technology to benefit all children.

---

*(Kagan, however, would be likely to argue that intercession is unnecessary, either early or later).

Table 2: Summary of Recent Positions Related to Social Action Programs for Children

1961 Hunt: intelligence, far from being fixed by heredity, is substantially influenced by the environment.

1962 Harrington: ....in an affluent society, millions of Americans are trapped in a cycle of poverty, unlike the upwardly mobile poor of the immigrant generations.

1964 Bloom: the early childhood years, relatively neglected in theory and practice, mark a period of most rapid intellectual growth, and thus are particularly significant for development.

1966 Coleman et al.: variations in school characteristics are not associated with individual differences in scholastic achievement; differences in family background and personal/social attitudes account for substantial variation in school achievement.

1969 Westinghouse Report: the scholastic achievement of children who had participated in summer and full year Head Start programs differed marginally or not at all from that of nonparticipants, except for full year program participants tested in the first grade.

1970 Jensen: "Compensatory education has been tried and it apparently has failed." Relative position on intelligence tests, far from being responsive to the environment, is largely influenced by heredity. Rote learning, associative aspects of intelligence are more characteristic of blacks; whites excell in reasoning, problem-solving aspects of intelligence.

1971 Ball and Bogatz: high frequency viewers of "Sesame Street" gained more on criterion-referenced tests than low frequency viewers.

1971 Moynihan and Mosteller: reanalyses of the Coleman data confirm the original conclusions: family background makes a difference in scholastic achievement while characteristics of the school do not.

1972 Bronfenbrenner: "The family is the most effective and economical system for fostering and sustaining the development of the child.... (but) to provide the conditions necessary for a family to function (adequate health care, nutrition, housing, employment, opportunity for parenthood) will require major changes in the institutions of society...."

Table 2: (Continued)

1972 Jencks et al.: poverty means inequality of income and can best be attacked directly through economic measures affecting redistribution of wealth; indirect attacks through manipulation of marginal institutions (with regard to their influence on income and status) such as schools and preschools are ineffective. Improvements in these institutions should be justified in their own right, not as effective means of eliminating inequality.

1972 Kagan and Klein: early developmental retardation associated with unfavorable environments is reversible without intercession. Rates of cognitive development may differ but by adolescence, children from "deprived" and "enriched" homes will display equal, and acceptable competence on measures basic cognitive process.

3. The continuity of human development has emerged as a salient factor in maximizing program effects. What has happened to a child before participation in a program limits or enlarges possibilities for development. What happens next attenuates or enhances the benefits of earlier programs. While there is little evidence of a critical period or period of irreversibility, each period is critical, in the sense of the possibility of important learning opportunities, and the cumulative nature of development indicates the desirability of early and continuous support for the child.

4. There is increased appreciation of the importance of all aspects of the child's life space: his physical environment, his immediate and extended family, experiences beyond his home with other children and adults, and the institutional characteristics of society which exert powerful influences on child development. Hechinger (1972) writes, for example:

> "Where does the fault lie when children do poorly in school? The remarkable consensus is that it is largely the home life that is to blame[4]....Clearly the current sociological theories of the societal and environmental impact on children--the concept of deprivation--has conditioned popular thinking. This is a significant reversal of the original faith of the universal education movement in the power of the school."

According to theorists such as Bronfenbrenner (1972), only when the salience of home and other social institutions are taken into account will early childhood intervention programs have substantial and durable effects.

In the next sections, evidence supporting these four major findings and their implications for future research and social action are presented.

PS 006784

2. Limitations in present knowledge

This review of early childhood literature is an intuitive synthesis of methodologically strong and theoretically cohesive points from many studies. The positive findings are emphasized at the expense of negative and inconclusive results. This optimistic approach should be balanced by the following limitations:

a. Implementation:

National programs often are far from avatars of the ideas on which they are based, due to uncertain funding, beginning problems that seem to increase as program size increases, limitations in administrative capabilities, and the effects of political pressures and counterpressures. In addition to these limitations on the programs (which appear as "noise" in national studies, since they are rarely independently assessed), are methodological limitations on the research which affect both small and large studies.

b. Measurement:

The methods available for assessing preschool program success are few, and the most reliable and sensitive instrument is also the most controversial.

The Stanford Binet seems to be the most reliable and sensitive developmental measure during the early childhood period (Walker et al., 1972). The Binet, however, is anathema to many who regard the test itself as responsible for hereditarian interpretations of ethnic differences in performance. Reliable, valid developmental measures for the early childhood period are sparse and in many areas, non-existent (CSE, 1971; Walker, 1972); despite progress since 1965 in testing and many attempts to improve the state of the art. Assessment of social/emotional development, often considered as the most important objective of preschool programs by directors and teachers (Bates, 1972), is also most difficult (Walker, 1972). For small, hypothesis-testing research studies (and in skilled hands), ad hoc questionnaires, scales and observation techniques can yield valuable data. For larger scale assessments of programs such as Head Start and Follow Through, our ambitions exceed our reach. Many programs attempt to influence what we cannot now reliably assess. The failure to find effects in these cases may rest in the inadequacies of the programs, limitations of measurement, or some combination of these. Comparative curricula studies often unfairly compare programs with objectives that can be fairly easily assessed and with outcomes that cannot feasibly be measured.

c. Subject assignment:

The problem of experimental control in field experiments limits the kinds of conclusions which can be drawn from such studies. As Stearns, Hawkridge, Averich, Campbell, and others have noted, most early childhood intervention studies are uneasy compromises between designs required for inferring causality (or even for determining if there is an effect worth considering) and real

world inability to recruit and assign experimental units at random to treatment conditions. Bronfenbrenner has dissected most elegantly the consequences of this in his analysis of galloping control groups, which suggests the power of family and ecological influences on child development. In many studies there are no control groups: only comparison treatments or reports of the progress of the experimental unit (which are of little help in reducing uncertainty in policy analyses, given unstandardized measures and possible interactive test/retest effects). Time series data, recommended by Campbell, are rarely available. Light (1972) trying to bring reason into such a field, urges (1) clustering similar studies and (2) relying on the findings from the sturdiest experiments, rather than pooling the results of poor to excellent research. Often, however, tantalizing findings, like forbidden fruit, cling to otherwise limited studies.

d. Replication:

Many innovative preschool programs are associated with a single, dedicated researcher operating in a single site. Lack of replication of these programs (1) by the same researcher in other sites and (2) by others in other sites often makes the distinction between the evangelism of the program developer and the effects of other aspects of the intervention unclear. Before Planned Variation, reports of the effects of a preschool curriculum as practiced by people other than the program originators were available only for Bereiter-Englemann and the "replications" of the "traditional" curriculum so often used as Brand X in intervention studies. Research reports from one year to the next, replicating the same intervention by the same investigator are also rare, further limiting the reliability and generalizability of conclusions from experimental programs. Another aspect of replication is program implementation, an important but largely unexamined variable: all programs with the same name are not the same program. (This may help contribute, for example, to the inconsistent reports for the effects of Montessori preschool for low income children.) Recent developments in process measurement will enable future researchers to calibrate implementation of at least some preschool approaches. Monaghan (personal communication, (1971) has prepared checklists describing 12 different preschool programs; Soar and Soar (1972) found differences among Follow Through programs on many instruments and scales; and similar findings have been reported by Stallings (1972).

e. Sample size:

The small Ns of some widely cited studies are suitable for pilot efforts but offer a risky basis for national policy. There is a plethora of such studies, often with such diversity in age of Ss, family background, region, ethnicity, means of recruitment, selection, inducements to participate, and program content, intensity, duration, and pacing that generalizations about treatment effects are barely possible, although in skilled hands (e.g., Bronfenbrenner, 1972) adequately designed studies with small Ns can be woven into a conceptually elegant pattern.

Given these problems, interpreting the literature, becomes something of a projective test. The evidence is not robust enough for all researchers to conclude that early intervention is a necessary, sufficient or clearly worthwile enterprise, even with results as large in magnitude as Herber's[5/] Expansion of early childhood programs on such evidence is difficult to recommend.

On the other hand, while it is possible to cite evidence from studies in which few or no significant immediate results have been obtained between experimental and comparison groups (including studies of Head Start such as the Westinghouse Report by Cicarelli et al., 1969), this evidence is not sufficiently clear-cut either to justify discarding the experimental efforts as wrong guesses. Thus programs tend to remain close to the level at which they were initiated (vide Head Start, Follow Through, Title I). Except for Sesame Street (which has been evaluated with criterion-referenced, immediate impact measures and is immensely popular with children of all economic backgrounds and family influence strata) other programs for children are neither bad enough to discard nor good enough to expand.

Current studies in the early childhood field are marked by greater attention to experimental design, larger investments in measurement develop-

ment prior to study initiation, and more frequent replication. Meanwhile, until findings of these studies are known, policy is based on the best available information. This does not indicate that universal preschool intervention is likely to be a sufficient means of breaking the poverty cycle, or of reducing social class inequities in achievement. One lesson from early childhood programs may be methodological: compromising research design or measures exacts a high cost in stagnated or discontinued programs. At some point in social action research, as in medical research, people are the experimental units and difficult decisions must be made to withhold service from some experimental units now so that all may be better served in the future.

Given these limitations, what are some of the findings from studies of early childhood development?

3. The importance of the first six years of life

A new born baby is almost all potential. He eventually will learn to discriminate color, size, depth, and figure to organize the world perceptually; at birth, he can barely distinguish light and dark.[6/] He will eventually recognize subtle changes in pitch, intensity, phase, and direction of sounds; at birth, he can barely tell the difference between sound and silence. He eventually will gain precise control of his body. Most amazingly, he eventually will learn to create highly abstract linguistic and conceptual structures, far removed from the concrete operations on which his earlier thinking depends. At birth, he does not even distinguish himself from the rest of the world.

Summarized below are some recent findings on children's development during the first six years which seem to have particular significance for early childhood programs.

a. Prenatal development: Babies are born with unequal potential for development. Many characteristics are inherited in the gene plasm: physical traits such as hair and eye color are most obvious but there are psychological characteristics too that seem to be inherited, some as potentials that depend on the environment for release, others such as response rapidity, (Birch et al., 1970), that seem more independent of circumstances.

In addition to genetic influences the fetus in influenced by what happens to the mother. Drugs and illness appear associated with congenital malformations during the first trimester, toxemias and similar complications are most likely to emerge in the second trimester, and maternal nutrition during the third trimester is highly correlated with infant birth weight and mortality.

> Low birth weight babies have the greatest developmental risk, in regard to survival and to later growth.
>
> Prenatal care and nutrition such as that provided through Maternal Health Centers reduce infant mortality; infant mortality (among the most sensitive indicators of the quality of life experienced in different countries or by different groups within a country) is highest within the United States for low income families and, within this group, for non-Caucasians.
>
> The greater developmental risks of low birth weight and vulnerable neonates are largely ameliorated by the time a child is two, four, and ten years of age in middle income homes (Willerman et al., 1970; Werner et al., 1971). In low income homes, the developmental gap between vulnerable and normal babies remains the same or increases over time.
>
> Poor nutrition during adolescence when the mothers' reproductive systems are maturing is associated with their babies' low birth weight. Later feeding programs during pregnancy seem to ameliorate but not to overcome the deleterious effects of maternal adolescent malnourishment.

These data suggest that we cannot wait until pregnancy is established to educate young parents-to-be about the significance of proper nutrition during adolescence, the vulnerability of the first trimester, or adequate prenatal care. On the basis of current data, education for parenthood should begin in late preadolescence or early adolescence, not only with respect to child rearing but also with respect to adolescent nutrition and prenatal care.

Ideally, preparation for child development should begin long before pregnancy; good nutrition for 10- to 12-year-old girls ensures their health development and increases the likelihood of healthy babies in the future. As yet we cannot modify human germ plasm benignly, but we can reduce mortality and developmental risk by simple, relatively inexpensive programs of nutrition, parenting skills education, prenatal care, and care during and following birth. The technology exists; effective large scale systems to reach adolescents need to be developed.

b. The first 72 months of life: Within 72 months, most babies have developed all the basic motor skills they will ever learn, many of the linguistic and cognitive skills, and have established their basic temperamental and social characteristics.

Recent studies have shown in almost every area that children are more responsive than previously believed. For example, in Lipsitt and Eimas' (1972) note:

> "Investigations of the infants' ability to perceive speech ....indicate that they are sensitive to the sounds of speech and capable of quite fine discriminations....1 and 4 month old infants were able to discriminate the difference between /bah/and/pah/. More importantly, they perceived the stimuli in very nearly a categorical manner, as do adults, and hence presumably in a linguistic mode as opposed to a purely acoustic mode." (p.35.)

"....The rate and amount of young infant's response decrement in a habituation procedure is predictive of later measures of cognitive development and central nervous system functioning....the faster the response decrement under early habituation procedures (1 year), the more 'efficient' is the individual alleged to be in later assessments. Lewis suggests....that habituation rate may be a valuable early diagnostic tool for detecting subclinical nervous system dysfunctions." (p.3.)

"Even premature infants can see patterned stimulation.... Both premature and full-term infants resolved grating stimuli of 1/2 inch and 1/4 inch, fixating these patterns more frequently and longer than a plain gray stimulus.... McGurk's magnitude analyses of attention--recovery responses showed that infants from 6 weeks to 26 weeks perceive alternations in orientation of 180 degrees, but only beyond 20 weeks of age can infants discriminate an upright from an inverted facial object. As in so many recent studies, the author concludes that infants are more sensitive to the spacial orientation of forms than has hitherto been the case." (p.3-4.)

"Schwartz et al. have shown that infant vocalizations can be conditioned through the use of only one or two components of the traditionally employed composite social reinforcer... A review by Fitzgerald and Porges of one decade of infant conditioning research suggests that within a very short span of time it has been rather well established that neonates and older infants within the first year of life are highly conditionable...." (p.7-8.)

Eveloff, tracing the development of speech from prelingual through articulate utterance concludes that emotional relationships play a central role, particularly in the first 18 months of life: "The first 18 months, then, are seen as the most crucial for symbolic language development....constant meaningful communication with adults is of decisive significance." (1971).

Singer and Singer (1972) reviewing recent studies conclude, "The significance of peer-orientation of parents, or ordinal position as well as family constellation, and the availability of various positive role models for sex role and self-esteem are strongly supported in a series of studies with indication that persisting patterns were well-established by age 5." (p.399.)

> Most of Piaget's major stages of cognitive development are typically completed by children in the U.S. between 5 and 7 years of age. Only abstract "as if" thinking, which often emerges between 12 and 14 years, remains to be established.
>
> Werner et al., (1971) note: "It appears that deleterious biological effects resulting in reproductive causalties exert their peak influence in the very early weeks of pregnancy, when 90 percent of the fetal losses occur. As pregnancy advances, and during labor, delivery, and early life, the external environment exerts an increasing influence. The effects of a stimulating or deprived environment appear to be most powerful in the early years of childhood when the greatest degree of rapid growth and development takes place....Our data suggest that ten times more children (in Kauai) had problems attributable to the effects of a poor early environment than to the effects of serious perinatal stress."

These findings point to the psychological plasticity of young children and to the developmental importance of the early years of life. They do not establish the early years as unique, irreversible determinants of later behavior. Human beings are capable of learning throughout their lives; thousands of adults in this country are responding to new opportunities by radical changes in life style from dependency to positions of responsibility, and are taking advantage of new educational opportunities. The relative effort required for such changes is not known; however, the wasted years--some of which may have involved personal and social damage--surely are longer when opportunity is delayed.

4. The available technology

a. Experimental programs: Recognition by Hunt and by Bloom of the importance of the preschool years directed attention to high risk children and to interventions that could reduce this risk. Since much of the early data focused on cognitive development (as measured by IQ tests) and later on

school achievement, the first intervention programs attempted to increase intellectual development in high risk children--those with initially low IQ's (Kirk, Strodbeck, Hodges et al., Weikart), those from low income families whose children often had later difficulty in school (Gray, Sprigle, Deutsch, Bereiter-Englemann) or those within the heterogenous low income group deemed at particular risk due to low parental IQ (Heber). These studies almost uniformly have shown that with a variety of approaches, begun at different ages, both general performance and specific skills can be dramatically changed. Stearns (1971), noting the success of preschool programs on criterion-referenced measures, concludes that

> "Examples of similar effects of preschool programs on particular skill areas, and not just sensory and perceptual skills, could be given at length. There exist now some good techniques not just for promoting particular language and perceptual skills, but also for promoting concept formation, memory, categorization, conservation, etc." (p.47-48.)

Among the findings[9] are:

> Schaefer showed that providing language tutoring from 18 through 36 months, 5 hours a week, can prevent IQ declines in comparison with no treatment control children.
>
> Summer "in center" classes plus once a week home tutoring changed IQ performance in one year from 88 to 96 for Southern 4 year olds (Gray). The greatest change occurred in the first summer (88 to 102); the later experiences did not increase IQ performance for these children.
>
> A center-based program which ran 5 days a week, plus weekly home visits, raised IQ's from about 80 to about 100 regardless of program content (Piagetian, Bereiter-Englemann, traditional) or age of entry. Subjects were North Central, urban children (Weikart, 1969).
>
> A center-based program which ran 5 days a week was associated with the following IQ gains in Midwestern 4-year-old children (Karnes et al., 1969):

Program	Initial	Final	Gain
Ameliorative	96.0	110.3	14.3
Traditional	94.5	102.6	8.1
SES Mix	93.3	98.4	5.1
Montessori	94.1	99.6	5.5

Results were equally good for the ameliorative program whether it involved teachers or trained paraprofessionals and for a home tutoring program.

Hodges and his associates found that a diagnostically based individualized curriculum was associated with an IQ change from 75 to 94 for experimental children vs. 75 to 88 for children enrolled in a traditional preschool, and 75 to about 81 for at-home controls for 5 year old Southern children.

Kraft, Herzog and Fuschillo reported that a two year preschool enrichment program raised IQ scores from 81 to 96 vs. 85 to 88 for controls in urban 3 year olds. The second year of the program yielded increased gain only for initially low IQ, relatively more advantaged children.

The list could be continued: many, although not all, of the studies show that child development <u>can</u> be affected by intervention.

Project Head Start is part of an intervention effort, but a part which differs from other efforts in important ways.

<u>b. Head Start</u>: In the summer of 1964, Sargent Shriver, then director of the Office of Economic Opportunity, asked Dr. Robert Cooke to suggest ways in which projects for children might contribute to the overall goal of OEO: reduction of poverty. The Cooke panel recommended a comprehensive program for preschool children. The program would meet the health and nutritional needs of the children, would involve their parents and the community in helping to foster the children's development, and would provide a happy, positive transition from the home to a group setting. Special emphasis was placed on the children's personal-social characteristics--e.g., curiousity, motivation,

trust in others, and independence. Head Start, as the program was titled, was seen as a part of OEO that supplemented other, adult-oriented programs. Like these programs, Head Start was expected to contribute to the institutional changes necessary for enduring effects.

Studies of Head Start have shown that the program "works" in many of the ways it was intended (from Bates, 1972):

> Head Start has brought health care to children who have never seen a doctor or dentist. In 1965, it was found that at least 6% of the children never had been seen by a physician, and over one-fourth had not visited a doctor within a year prior to the program; over 58% never had been seen by a dentist. Since 1965, according to parents, over 90% of the children in each Head Start Program have received a medical and/or dental examination, and by the Full Year 1970 program, over 82% of those needing treatment received it through the program. Cost data for 1967 programs indicate that of the Project Head Start average cost per child of $1,050 in a full year part day program, $66.15 or 6.3% of the average total cost went for health services. Providing health care for Head Start children has included immunizations for DPT, Polio, Smallpox, and Measles; screening examinations for Tuberculosis, Anemia, hearing, and vision; follow-up examinations and treatment; dental examinations and treatment. By the 1970 Full Year Program, while a number of children had received one or more immunizations prior to the program as a direct result of Head Start, an additional 64,411 children by mid-program had been fully immunized to all four diseases. By mid-year of the Full Year 1970 program, 177,720 children had received tuberculin tests; 174,829 had received blood tests for anemia; 162,735 had received hearing screening tests; 185,607 had received vision screening tests; and 202,433 had received dental examinations. As examples of follow-up and treatment, about 22,083 children had results indicating anemia and treatment was being received or had been completed for 16,695. Dental caries were discovered in more than 98,382 children and treatment was being received or had been completed for 80,476 children by mid-year.
>
> Head Start has involved parents and the community in fostering the welfare of children. Since 1965, parents have been involved in Head Start in a variety of ways. They have served on policy councils, many for the first

time in their lives assuming positions of leadership and responsibility. In the Full Year 1970 Head Start Program, for example, 55,919 parents were serving in this capacity. They have organized and attended lectures, demonstrations and workshops pertaining to topics including child growth and development, health education, consumer education, nutrition and food preparation, clothing (buying, sewing, repairing), employment information, and use of community resources; they also have participated in social and recreational events. In the Full Year 1970 program, 78,946 parents were involved regularly in these activities. Parents were also involved in more formal educational activities. For example, in the same program, 10,691 parents attended literacy training, and 6,168 parents attended vocational training programs sponsored by center staff. Parents have worked in Head Start filling both paid positions and serving in a volunteer capacity. In Full Year 1970, for example, while 15,233 parents were working in full-time and part-time paid positions, 80,571 parents were participating as volunteers. Combining for paid and volunteer positions held, 41,579 were serving in the classrooms as teachers and teacher aides; 20,023 worked as transportation and trip aides; 6,898 were involved in equipment construction, repair, and building maintenance. Other people have participated, too. Since 1965, young people of elementary, junior high, and senior high school age, college students, "senior citizens" and other adult professionals have contributed their time and skills to the program. Youth organizations such as scout troops, the 4-H, and teen clubs; community organizations such as lodges, churches, clubs, and the PTA; and professional organizations, such as medical and dental societies, have contributed their resources. Local business was also reported as being an active supporter of the program. For example, in Full Year 1970, about one-third of the centers reported active support from youth organizations; over two-thirds reported such support from community organizations; and about one-half reported such support from professional organizations and local businesses.

<u>At a national level, Head Start has been part of a substantial increase in preschool enrollment and in teacher training.</u> According to Mason and Rice (1967), for the academic year 1964-1965, a total of 47 institutions conferred degrees in preprimary education (or 3.1% of all institutions). For the academic year 1969-1970, a total of 144 institutions conferred degrees in preprimary education (or 8.9% of all institutions) (Hooper, 1970.) In the fall of 1965, of a total population, 12,549,000, 30.6% of the 3-5 year olds were enrolled in some form of schooling; and 8,699,000 (or 69.3%) of the 3-5 year olds were not enrolled (Schloss, 1966).

In the fall of 1971, of a total population of 10,610,000, 43% of the 3-5 year olds were enrolled in some form of schooling, and 6,075,000 (or 57.3%) of the 3-5 year old group were not enrolled (Barker, 1972). Supplementary training of Head Start personnel, in line with new career development plans, has been promoted through a special contract. In 1971 alone, 9,376 staff members were enrolled in colleges. Stearns (1971) notes, "This has had effects on the colleges (stimulating new courses, reorganization of departments) as well as on Head Start employees." (p.99.)

Head Start has been particularly effective as a change agent at the local level. A survey by Kirschner Associates (1970) identified over 1,496 changes in local institutions in ways consistent with Head Start goals in a sample of 58 communities. Change was greatest when parents were highly involved and when the other OEO programs were active in the community. Significantly, institutional changes associated with Head Start involvement were lasting. Among examples of institutional change were:

> "In a small southwestern village a grass roots organization has formed a group of Spanish-speaking parents to pressure for changes in school policies and practices. An issue currently in focus is the school system's lunchroom regulation against students bring rather than buying lunch. (Many cannot afford the lunches.)"
>
> "A midwestern school system has employed indigenous teacher aides in poverty neighborhoods to tutor children after school."
>
> "A midwestern school system has placed social workers in ghetto neighborhood schools. Most of these new staff members are black."
>
> "In Appalachia, a visiting nurse program has been established for the purpose of providing routine nursing care to the sick in an area with a paucity of medical services."
>
> "A health care clinic in an eastern industrial city represents the culmination of many months' effort by Head Start parents, university medical students, faculty members, and the public health department. The concept for this clinic appears to have been the brainchild of Head Start parents and other members of the Head Start Parent Advisory Committee." (Kirschner Associates, p.7-8.)

Head Start has been successful in providing experiences which foster child development. Both Summer Head Start Programs and Full Year Programs show immediate benefits in personal-social and cognitive development. For example:

> Emmerich (1971) observed children during free play. Between fall and midwinter, children became significantly more persistent, cooperative, motivated, and self-confident. Additional gains between winter and spring, however, depended on the age and sex of the child.
>
> Almost all the Head Start children participating in the 1969-1970 Planned Variation Study gained significantly in both academic and cognitive skills above the normal gains to be expected through maturation (Stanford Research Institute, p.179).
>
> Recent analyses of national samples of Head Start programs indicate that 21% of the classes show IQ score losses or gains of less than 1 point, 44% small gains (1 to 7 points), and 35% large gains (17 to 22 points) from fall to spring. (See Table 3, following pages.) Clearly not all Head Start programs are as successful as the experimental programs described earlier and in Stearns (1971), but, on the whole, the record is good for a large scale program.

Comparison of gains in the basic cognitive, skills and personal-social development areas reveal a striking relationship between the magnitude of the gains and the program emphases reported by Head Start directors. As Table 4 shows:

--gains on the Binet were statistically reliable and moderate over all programs, in absolute size. For about half the children, on entry, scores indicated mild to more severe retardation; at the end of the program, there was a 10% reduction in this percentage. Twenty-three percent began with average or above average performance. At the end of Head Start, there was an 8% increase in this group, which cannot be explained by the "regression to the mean" phenomenon applicable to a certain extent to improvement in below average scores.

--on the Preschool Inventory, a measure of preschool readiness, there was an increase in high standard scores of from 30% to 55%; although 34% of the children entered with low standard scores; by the end of the program, only 12% had scores indicating low readiness for school.

--on a measure of motivation to achieve in school situations (the Gumpgookies), the percent of children with high standard scores increased from 7% at entry to 70% after one year in Head Start.

About the only measures which did not show reliable improvement were those on which entry level performance (particularly in socialization, peer relationships, self image) was initially quite high. (Datta, McHale, and Mitchell, in press.)

These data could be interpreted as a developmental spurt due to a new situation, one that would occur later in primary school anyhow. The magnitude of the changes, and the lower rate of change reported in longitudinal studies with control groups suggests that the "spurt" explanation (or test/retest gains) accounts for some but hardly all of the differences. This explanation would not account for the differences among cognitive, skills and motivational measures, or at least these differences have not previously been predicted in this context.

With regard to interpretation of the different magnitude of the gains, one possibility is that the data reflect consistency in program emphases. Most of the distributions have fairly large standard deviations; the Binet is the largest. If the differences in magnitude of gains are due to program heterogeneity for cognitive aims and homogeneity in striving for motivational gains as reflected by teachers' descriptions of their programs, then the SD's for motivational gains ought to be smallest and the SD for cognitive gains should be greatest. Since the tests are standardized on different populations, this cannot be tested directly, but inspection of the SD's relative to the range of the test suggests this interpretation has some validity.

A third interpretation is that the magnitude of the gains are related to differential plasticity in cognitive, skill and motivational characteristics.

Table 3: Mean Stanford Binet Gain Scores for National Samples of Full Year Head Start Programs (October-May Interval)*

Mean Gain Score	Year	
	1967-68	1968-69
+19 to +22	.6%	.9%
+16 to +19	1.2	.9
+13 to +16	3.4	1.8
+10 to +13	8.6	11.7
+ 7 to +10	17.2	19.8
+ 4 to + 7	23.0	20.7
+ 1 to + 4	23.0	23.5
+ 1 to - 1	11.5	12.6
- 1 to - 4	9.8	2.7
- 4 to - 7	1.7	3.6
- 7 to -10	-	.9
-10 to -13	-	.9
N classes	174	111

*Data summarized from Research Triangle Institute (1972).

Table 4

Pre-Post Changes in Performance, 1968-69 Sample

Measures Showing Substantial Improvement*

Measure		Pre	Post
Binet IQ	101+	23%	31%
	90 to 100	27	30
	89 or lower	49	39
PSI Standard Score	121+	30%	55%
	101 to 120	36	33
	100 or lower	34	12
PSI Subtests 90% of Perfect Score	personal social	11%	24%
	vocabulary	7	22
	numerical	4	13
	sensory	18	40
AH-WPPSI Standard Score	12+	12%	25%
	9-11	35	40
	8 or less	63	40
Birch Verbal	high	34%	52%
	middle	50	41
	low	16	7
Social Adjustment: FATP	very high	7%	66%
	high	66	18
	moderate	27	17
Gumpgookies Standard Score (Motivation to achieve)	high	6%	70%
	average	21	19
	low	73	11

*Data summarized from Systems Development Corporation (1972).

Basic cognitive skills theoretically ought to be least susceptible to change. The stability of the IQ when environmental circumstances remain fairly stable, plus the stability of the ordinal position on measures of intelligence among individuals when environments change dramatically support this belief.

Most susceptible to change should be motivation and a sense of self-worth, since these are most influenced in their expression by the environment and seem most dependent on environmental support. Changes in school readiness and specific skills whose acquisition are influenced by motivation and ability ought to be intermediate in size as a result of environmental modifications.

Analyses of the Planned Variation data, where similar outcome measures were obtained for preschool curricula emphasizing different objectives will help interpretations of the 1966-69 data; second generation experiments specifically designed to test these, and other interpretations will be needed, however, to isolate variance due to (a) new situations and/or test adaption, (b) measurement error due to comparing standardized tests with unstandardized measures and observations, (c) inherent differential plasticity of cognitive skills; motivational characteristics, the skills, and (d) unique program emphases.

What Head Start means to children is illuminated by Dittman et al.'s (1972) case studies of twenty children who participated in the 1970-1971 Planned Variation study.

> Melvin: "Melvin has moved from being a child who followed directions carefully, initiated few interpersonal contacts and generally played along (to a child who) volunteers quickly...., tells other children where to go and what to do, laughs readily...,initiates conversations with students and aides.... He seems to have blossomed during the year. In contrast to the timorous, withdrawn appearance he presented in the beginning of the year, it seems that Melvin has achieved most of the skills which one would hope for him by year's end." (p.4.)

Nancy: "Nancy seems to be a self-reliant child who, at the outset, asked for nothing and expected nothing in return. During the year, she has reached out, and having been met with responses she can understand, she is winning a place for herself in a group of children.... She has shifted, quite dramatically, from a clinging passive dependency to a more appropriate use of adults...." (p.3.)

Robbie: "During the school year, Robbie has functioned consistently in all areas. He has grown and developed tremendously.... Intellectually, Robbie is at the top of his class. He goes beyond expectations in all learning tasks.... He possesses a long attention span, and perceived details in the classroom unnoticed by most of the other class members. He is excited about school. Robbie has exceptional promise. Apparently Robbie was able to enjoy all of the opportunities for work and play available to him. There is no indication that the program did not provide sufficient challenge for him." (p.5.)

Tracy: "In contrast with the marked changes seen in many children during the year in Head Start, the changes noted in Tracy must be regarded as minimal.... Overall, her non-verbal patterns tend to irritate adults.... She manages to deploy her time and get through the days without making waves. She is well accepted now by her peers. Since she peaked early in the program in competency with the demands of the model, there may be little that is beyond her skills. Her paintings show remarkable variety and sense of form. But she has abdicated a large segment of experience by her refusal to participate on a verbal level.... Doubtless, a standard intelligence test will not reveal her capacity and she would be classified as untestable, as in the physical exam when she refused to cooperate with her physician, leaving her hearing ability in question. Caught between a pair of rambunctious twins and a younger sister who is the only one of her siblings to be a product of this marriage, Tracy tends to be left out at home, and regarded as something of an unknown." (p.1-4.)

Joseph: "At year's end, Joseph appears to be a child who is less task oriented, and more involved in social interaction, risking some disapproval both from adults and children.... Developmentally this is probably positive.... Head Start has given him additional confidence in his ability to meet the expectations of adults even to the point of selectively disregarding their wishes.... In his style, he seems quite boyish, quick, and able to achieve the expectations of this group. By virtue of his command of language, his real ability and his experience with follow

> through on expectations of adults, he starts out a natural leader.... By year's end, he is less smooth and reliable.... There is some question if the program was sufficiently challenging for this boy: he was not encouraged to use materials in increasingly creative ways." (p.4.)

c. What works best: Comparison of the performance of children who have participated in different curricula suggest that the immediate effects on IQ scores and measures of academic achievement are greatest for programs providing direct preacademic training (Bissell, 1971; Stearns, 1971). Soar (1972) identified three outcome factors in the National Follow Through achievement test battery: concrete thinking, skills, abstract thinking. After extensive and ingenious analyses relating observed classroom practice to changes in kindergarten and non-entering first grade performance, Soar concludes:

> "Greater amounts of teacher control, structure, focus, and convergence, or lesser amounts of pupil freedom, exploration of ideas, and experimental teaching led to increased pupil cognitive growth, especially in the skill measures. (p.xxi).... (These results) agree with the expectations of some theorists that disadvantaged pupils should need larger amounts of structure or control to maximize learning than would be true for middle or upper class pupils." (p.146.)

Whether one kind of curriculum is "best" in the long run or when judged against social/emotional or other objectives; if many curricula are equally effective (or ineffective, of Averch et al., 1972); or if there is an interaction between program and child characteristics remains conjectural. Among the tantalizing pieces of evidence are:

> Bissell's (1970) re-analyses of Karnes', Weikart's, and DiLorenzo's data which indicate that all curricula benefit more advantaged children while only the Bereiter-Englemann academically oriented programs benefitted low income children on measures of IQ and scholastic achievement.
>
> Weikart's (1969) analyses of his own data which he interprets as indicating that with supervison structured (Bereiter/Englemann), cognitive (Weikart), and unit based (traditional) preschool programs are equally effective with low income children.

Miller and Dyer's (1972) comparison of four curricula, which showed that preschool programs have the specific effects intended for low income children (e.g., DARCEE fosters perceptual development; Bereiter/Englemann, preacademic skills) so that what is "best" may depend on the outcome desired.

The preliminary Planned Variation data (Bissell, 1971) which also indicate a specificity of effect.

The reports from Sesame Street evaluations (Bogartz and Ball, 1972) indicating success on criterion-referenced objectives but failure with respect to problem solving or transfer measures.

These findings suggest that:

with extraordinary levels of supervision, quite different curricula can be equally effective.

in more typical circumstances, outcomes are related to specific program objectives for low income children.

the apparent failure to transfer gains across domains may point to the need for learning-how-to-learn programs such as Sprigle's (Van de Riet et al., 1970) which seem to have general benefits for the children.

The third year findings from the Planned Variation Study (see Klein and Datta, 1971, for a description of the project) should permit more definite statements regarding the "one best", "equally good", and "interactive" hypotheses. The conclusions will be limited, however, to immediate benefits, and some sponsors predict equal achievement on scholastic measures only after four or five years in their programs. While many researchers recommend interactive analyses, few have reported tests designed to find out what approach has what effects. Soar (1972) concludes that for scholastic achievement outcomes in primary school, child and program variables have few interactive effects (Follow Through data). Beller (1972), using similar data but from one site (Philadelphia), concludes that interactive effects account for more variance in longitudinal studies than child or curricula characteristics per se.

While the evidence is incomplete, there is enough data to permit parents, teachers and administrators to select program components intended to achieve specific outcomes for preschool children, with assurance that these will be achieved if the programs are well-implemented.

5. The importance of continuity

The technology now exists to make a significant immediate difference in the development of children. Follow-up studies indicate that a child's development can be attenuated or enhanced by his continuing educational experiences.[10/] Miller (1972), for example, first compared cognitive change during Head Start for children attending four different curricula: Bereiter-Englemann, Montessori, DARCEE, and "traditional" classes. She then tested the children on the Metropolitan Achievement Test at the end of the first grade, after the children attended either a University of Kansas (behavior-modification) Follow Through or "regular" classes. The Bereiter-Englemann children had achieved the greatest gains during preschool; children who had attended "traditional" Head Start classes made the greatest gains in first grade in both the Kansas and "regular" classes. These data suggest that differences among even apparently similar curriculum models can influence child performance. Unlearning the distinctive teaching style of the Bereiter-Englemann, DARCEE, and Montessori models may have been necessary before the children could function well in the distinctive style of the Kansas model; the less distinctive "traditional" program may have had a greater transfer value in adjustment if not in specific cognitive skills. While these are unanswered questions, many researchers are calling for continuous, well-planned, well-implemented experiences, particularly those with strong support for the family-as-a-teacher.

The Office of Child Development recently asked eight researchers who have conducted longitudinal studies to describe their programs and report on their findings (Ryan, in press). These studies, and other shorter-term and cross-sectional reports suggest that:

> The best thing that can happen to a child is to participate early in a program (a) that is continued directly (e.g., Karnes, 1969; Erikson, 1969; Sprigle as reported by Van de Riet et al., 1972); (b) that is followed by a compatible experience (Miller, 1972; Abelson, 1972), or (c) where there has been maternal training as well as child participation (Weikart, 1972; Gray, 1972). Under these circumstances, continued growth or maintenance of earlier gains at least for a year or so after entry into primary school may be expected. To date, only the Planned Variation Ira Gordon home tutoring model is combining direct continuation from preschool (Head Start) to primary school (Follow Through) with home tutoring. Longitudinal data from this study will be available in 1976.
>
> One of the most memorable things for a child is to be a boy from a low income family who has not participated in preschool and who enters regular public school (Erikson, 1969; Miller, 1972).

Experiences between these extremes tend to yield performances between these extremes. It is too soon to say whether children who enter an experimental program at primary school will eventually catch up to children who have had presumably optimum combinations of preschool and primary school experiences. Preliminary data from relatively weak combinations (regular Head Start and Follow Through) suggest that the answer is likely to be "no", particularly for high risk children. The greater the number of criteria considered the more likely the answer is to be "no". The ability to catch up on various measures of school achievement is uneven; and measures of IQ seem to be most likely to show any catching up. This probably indicates that some of the IQ gain is due to adjustment to a new setting and motivational factors (Zigler and Butterfield, 1968). Further data are needed before degree of risk and benefit

associated with various sub-optimum combinations can be specified. Several ongoing studies (Planned Variation, ETS longitudinal study) are collecting such comparative information.

While the continuity hypothesis is consistent with present evidence, how continuity between preschool and primary school may be provided most effectively is only beginning to be explored. At least five approaches can be identified:

1. Program continuity, created by an outside sponsor whose curriculum is offered to both preschool and primary classes (Head Start/Follow Through Study).

2. Comprehensive environmental continuity, created by a unified preschool, preprimary, and elementary school program (Bettye Caldwell's Kramer School).

3. Continuity of teaching staff from preschool to primary classes (Los Angeles/FECE Study).

4. Continuity of peers, created by keeping classes intact from preschool to primary grades to foster the social learning effects described by Grotberg (1971).

5. Parental continuity, either as advocates or as trained child educators, is among the major benefits predicted from burgeoning home-based programs. As Lazar and Chapman (1972) indicate, there is at present little evidence that teaching parents how to foster child development prevents the loss of gains or momentum so frequently reported after the child enters public shool when the parent education program is discontinued. There are many longitudinal studies of parent education programs now in progress; we will have to wait several years until the findings from these are available before the success of this approach to continuity can be assessed.

Again, there are tantalizing findings:

> Graduates of Sprigle's Learning-to-Learn program (Van de Riet et al., 1972) and of the "traditional" but very well run preschool studied by Beller (1972) achieved and maintained normal IQ and scholastic performance two years or more after the preschools ended, while "traditional" or later-entering contrast groups have not yet caught up.

The Jacksonville and Philadelphia schools these children entered have been experimenting actively and in Philadelphia top leadership is particularly enthusiastic about educational innovation which may have contributed to the apparent durability of preschool effects.

Regular Follow Through maintained but did not increase regular Head Start gains (Abelson); evidence regarding the extra benefit derived from Head Start plus Follow Through vs. Follow Through alone tends to support the continuity hypothesis (Abelson, 1972; Schwartz, personal communication; Bissell, 1972) but differences are not compellingly large.

Longitudinal studies (Ryan in press) show that experimental preschool programs often but not always have some durable effects until the third or fourth grade. The third grade may present a particular risk to low income children (assumed mastery of reading?) that requires additional intervention at this time.

Some support for this possibility (that effects are dissipated more by new environmental demands than by time per se) is found in Bronfenbrenner's (1972) analysis. Home-based, very early programs had effects three years after the program ended, which was still prior to school entry. Post school data for the most promising program (Levenstein, 1972) are not yet available.

6. The importance of the multiple influences in a child's life space

The fourth major emphasis emerging from the past decade of research and evaluation studies is the rediscovery of the importance of the family and the social context of the child's life. Interventions limited to what adults do in a classroom with children can and do influence child development. Some researchers, (e.g., Bronfenbrenner, 1972; Schaefer, 1971) conclude that this influence is less durable than that of the family, and the social context: the messages about what we value as a society, how people treat each other, what possibilities life offers, what demands are made by television and other media, by peer groups, and by the housing, transportation, recreation, shopping, and employment conditions that shape so much of a child's daily life.

Evidence for this point of view derives mainly from observation and social analysis; from the research literature on socialization (Sowder and Lazar, 1972), and from studies of interventions which seek to strengthen the family's responsibility for child rearing.

Bronfenbrenner (1972), reviewing much of this evidence, concludes:

> The evidence indicates that the family is the most effective and economical system for fostering and sustaining the development of the child....the involvement of the child's family as an active participant is critical to the success of any intervention program.... The first and most essential requirement is to provide those conditions which are necessary for the family to function as a child-rearing system. These include adequate health care, nutrition, housing, employment and the opportunity and status for parenthood....to provide the conditions necessary for the family to function will require major changes in the institutions of society and new institutional forms. The results of this analysis offer no guidance on the development of new systems for providing adequate health care, housing, nutrition or income but they do suggest strategies for increasing opportunity and social reward for the functions of parenthood. These include extending the number and status of part-time jobs available to disadvantaged parents of young children, more flexible work schedules, introducing parent apprentice programs in the schools to engage older children in supervised care of the young, involving parents in the work of the school, creating patterns of mutual assistance among disadvantaged families living in the same neighborhood, meeting basic needs of young families (including supervised experience in child care) before they begin to raise children, providing homemaker services, making available insurance to meet family emergencies, and using television as an adjunct to parent-child intervention. (p.113-115.)

The Federal Interagency Panel on Early Child Development has put a similar emphasis on studies of social ecology in child development, calling for substantially greater attention to housing, familial occupation patterns, and the world revealed to the child on television.

For many months Schaefer has urged the formation of a National Institute of Family Studies, and analyses that include (a) interactive models of child/

other relationships and (b) an assessment of how multiple factors influence child development.

Although more than one social rights advocate has said, "Give us decent housing, food, medical care and jobs, and we'll take care of the rest," it is important to distinguish between the broad changes in social institutions which Bronfenbrenner advocates and the distribution of wealth without broad changes which is implied in the first statement. The forms of child neglect apparent in many well-to-do-homes and the forms of child neglect in the homes of AFDC mothers documented by Polansky et al. (1971), both should be affected by the broad changes discussed by Schaefer and Bronfenbrenner.

7. Implications for policy relating to children

According to present evidence, comprehensive, longitudinal, high quality developmental programs are valuable for most participants and may be necessary for some children. Does this mean that all 3 to 6 year old children should attend preschool classes 5 days a week? It seems more likely that present data, theory, and practical considerations point to developing alternative approaches to early child development and that one approach would be that of traditional preschools. The goals of these approaches would be (a) the provision of necessary health care and nutrition to every child who needed it, (b) an economically feasible provision of the kind of preschool experiences appropriate for a child's developmental needs, and (c) the strengthening community institutions that support child development. What might some of these new approaches look like?

a. Some current experimental programs

Health Start is an experimental program whose goals are to reach young children who have not received medical or dental care and bring them into the care of available resources. For example:

In the Penobscot, Maine, Health Start, Indian and white low income families had six weeks of recreation and daily health education while the children had a day camp experience, health screening and follow-up care. After summer camp, the program operated satellite screening and referral centers in remote areas, serving many children who had never previously seen a physician.

In Tulsa, Oklahoma, a massive multiphasic screening and referral program to reach 2,000 low income preschoolers was initiated. The program "called for the development of traveling clinics at twenty-one sites, which in a five station high-volume operation would offer a computerized health history review; visual, auditory, and phonocardioscan screening; physical health appraisal; gross urinalysis; TB skin testing; hematocrits and immunizations." In the first forty days, 1,800 preschoolers were screened at a cost of $11.00 per child. (Perlman, 1972, p.26-27.)

In Boone, North Carolina, a medical student team screened, tested, and developed individual health management plans for 215 low income preschoolers.

In Benton, Arkansas, service coordination to deliver health care to children came true. "A competent and aggressive Health Coordinator arranged for extensive in-kind services.... and more comprehensive follow-up care. In addition to the savings resulting from the participation of residents and from the negotiated dental fee, Health Start's twelve centers were rent free. The program involved Neighborhood Youth Corps, Mainstream and Vista workers, and was able to use surplus federal vehicles at reduced travel costs. The Emergency Food and Medical Program paid for dental extractions and any follow-up care given at the general medical clinics. Another strong plus for the program was the creative use of the AAP and PHS consultants. Benton Health Start was, overall, a solid program which successfully identified and served its target population." (p.3.)

Home Start will be the first program that provides all of the Head Start comprehensive services coupled with at-home parent education. Now entering its second full year, the 15 Home Start programs are creating a variety of outreach and service delivery techniques, many of which are already being adapted in "regular" Head Start programs.

In other parent-focused programs:

> Lally is studying the effects of a weekly home visit serving first the mothers' needs and then the babies', beginning prenatally for 60 mothers and postnatally for 60 more families and continuing through the first five years of life. The babies begin half-day care, in addition, at 6 months of age and a full day program at 3 years of age.
>
> Mothers in Levenstein's project receive toys and games chosen to stimulate verbal interchange between mother and baby. They also have home visit toy demonstrations. Levenstein, after a highly successful initial demonstration, is now exploring various combinations of visits per week, months of participation and age of entry. She also is studying program replicability.
>
> Intensity, duration and age at entry are varied in group home-based parent training programs at DARCEE. This new study will also examine diffusion to younger and older siblings, and assess changes in the home environment and parental behavior as well as child development.

For a recent review of parenting skills studies, see Lazar and Chapman (1972) and Schaefer (1972).

Some programs are beginning before the baby arrives with parenting education for teenagers. Among these programs are:

> One hundred pregnant girls and returning dropouts are being served by the Preparation for Parenthood program in Waco, Texas.
>
> "In the Demonstration Project for Disadvantaged Young Parents, Pinderhughes is recruiting innercity youth to participate in a program designed to provide knowledge and skills about child development practices. Subjects will be 16 and 17 year old males and females who will meet twice a month for a two year period."
>
> "Dow is developing a one-year curriculum in early child development for adolescent students. Training will include readings, films and a practicum experience in working with children." (Lazar and Chapman, 1972, p.62.)

The Office of Education experimental schools program is a long-term, massive effort to effect major institutional change, integrating education with community life. These programs, if successful, may end isolation of education as a life experience.

The potential of television for providing both early education for the child and parenting education is being widely explored.

The Office of Education is funding the preparation of a child development training curriculum for parents and child care workers to be broadcast by satellite in 1974. The program, being prepared by Peterson, Aghi and McAfee, is intended as a major demonstration of the feasibility of parent and teacher training via TV.

At Nova University, a TV program for mothers of infants is being developed and tested by Segal. It is intended to provide child development training directed at the child's comprehensive needs during the earliest years of life.

TV programs to reach special segments of the population are expanding: Sesame Plaza, oriented to the needs of Spanish speaking preschool children, and Chiquitines, also directed to the Spanish speaking child join Around the Bend, developed for rural Appalachia, and The Electric Company.

Perhaps one of the most significant children's policy issues of the 70's is the increase in single parent families and families where both parents are employed outside of the home, and the corresponding demand for day care.

The findings from Head Start and other studies indicate directions for new approaches rather than demonstrating unequivocally that preschool can make a sufficient contribution to breaking the poverty chain. If this is so, why do we want day care? It seems to me that the answer is that we do not, at least not as an instrument of social action designed directly to reduce poverty or ameliorate its consequences for children. From my point

of view, whatever social action is undertaken should place the well-being of children at the center of decision-making, not self-actualization or equal rights for their parents, or reduction in welfare rolls. While some psychologists see day care as a potentially powerful agent of social change, most requests for day care seem to be for the benefit of parents, employers, or welfare rolls. While some psychologists see day care as a potentially powerful agent of social change, most requests for day care seem to be for the benefit of parents, employers, or welfare costs rather than for children. By permitting parents to hold jobs, day care may help break the poverty cycle for the parents, but we have no direct data on this, and what little data there are for manpower training programs suggest that only 25% of the trainees find and hold employment. With current estimates of the cost of day care, it is likely that day care will significantly improve the incomes only of parents with one or two children who have the skills to earn fairly high total incomes. The true financial benefits of day care for the welfare family with 5 children and marginal skills seems slight, although there may be secondary benefits of family self-sufficiency that will emerge in improved second-generation economic status.

From the children's point of view, there is evidence that preschool experiences can be offered in a variety of ways in addition to the five day a week care model, and that these may be as effective, less costly and more beneficial for many children than the center based approach. While there is considerable evidence that under optimum circumstances, group care does not harm infants' development, the lower limit of non-optimum conditions is not known, yet according to Keyserling (1971), non-optimum conditions are typical.

Finally, Bronfenbrenner (1972) cites evidence that children whose mothers work full time gain less from preschool than other children.

Nevertheless, mothers of millions of children are now employed, and the trend is increasing. Availability of excellent, inexpensive child care is likely to accelerate this trend. If we are willing as a country to subsidize the price of optimum, continuous care, the children would probably not be harmed, at least not older children who have formed the primary parental attachment. Such care is likely to be expensive, but it may be feasible to develop a good large-scale child care system, as experiences in Japan, Israel, Cuba, Denmark, and Russia suggest. Should we be willing to pay only for suboptimum care above some threshold of harm, then a conservative interpretation of the evidence suggests only mothers of older children who are likely to be less vulnerable should be encouraged to work. There is a third alternative if the existing need for day care is to be met: released time and more flexible time so both parents can share the responsibility for child-rearing. While such arrangements were among the approaches to strengthening family life recommended by the White House Conference on children (1970), they are yet to be studied in this country.

As this discussion suggests, I would favor alternatives that did not encourage families to place their children in day care and which would strengthen the family as the primary child rearing agent. Among the alternatives would be:

> through education and availability of family planning devices encouraging families to limit their children to the number they can afford, born at a time when the parents want to devote themselves to child rearing.
>
> family leaves for men; encouraging part time and odd-hours employment arrangements so both mothers and fathers can work and still be the primary caretakers for their children.

increasing salaries for jobs available to low income families so that one parent can earn an adequate income to support the family.

through income tax inducements, favorable housing support and other devices, encourage the development of multi-generational living arrangements so child caretaking responsibilities can be shared with older family members.

education for parenting training for preadolescents and adolescents, both boys and girls.

child demonstration agent programs for parents with children under three years of age, with visits decreasing in frequency as the child grows older, but continuing throughout the child rearing period.

Many of these suggestions run counter to current trends toward individual freedom without enduring responsibility to others. In communes, responsibility for child rearing is apparently the child's as soon as possible. Some Women's Lib. groups speak as if they are entitled to have some one else feed, bathe, change, and teach their babies while they receive high salaries for creative, self-actualizing jobs. Some older people resent being asked to care for the children's children.

In some countries, every possible pair of hands is needed to increase and sustain the economy or to begin social indoctrination of young citizens, and so day care centers are economically or politically necessary. In our technology-intensive country, increasingly fewer hands are required and we are less concerned at present with socialization of the ideal citizen.

As Bronfenbrenner, some forums of the White House conference, and this paper have suggested, a re-orientation of our economic and industrial systems to provide our children with the benefits of adult responsibility, skills, moral values, and love in child-rearing may be the kind of concern for future generations that distinguish the mature individual and the mature society.

b. New directions

The experimental programs already underway are building on available data. Additional programs are needed, particularly in these directions:

Diagnostically oriented programs for high risk children matching need and intervention, and integrating available resources.

Achievement of maximum continuity among existing programs such as Parent Child Centers, Head Start regular and experimental programs, Follow Through, and Title I. Children and their families should no longer enter a program, participate for a year and be thrust into a "regular" experience. Instead, coordination of existing resources in the same community could provide a continuous experience. Continuity of teachers, of program content and style, of parent education, and peer groups all contribute to the child's development.

Continued experimentation in program and resource coordination in the areas of health and nutrition. Parent education and cooperation in these areas should be fully utilized as a means of preventing problems and of reducing later dependencies by bringing children promptly to available care.

Improvement of existing programs through resource coordination, training, integration of innovative ideas, and improved management. Information now available can be applied to make substantial improvements in existing programs. For Head Start, this includes regular monitoring of each project and revisions in the training and technical assistance components. It includes coordination with other programs; in 1973, for example, Head Start will work with the Bureau of Education for the Handicapped preschool programs, using BEH expertise and resources to increase the quality and quantity of Head Start service to handicapped youngsters. Changing existing institutions--even new ones such as Head Start and Title I--may be less easy than creating new projects; learning how to utilize research information for rapid program improvement remains a challenge for the 70's.

Finally, initiation of second generation research studies to explicate the unfinished business of the first generation of demonstration projects should have high priority.

8. In summary, much information on the preschool years has emerged from the pioneering studies and programs of the 60's which can be applied to new approaches to early child development. The development that is possible under optimum circumstances is impressive; the technology now exists to support a wide variety of child growth, and it exists in many forms: television, curriculum modules, special equipment, developmental philosophies or models, programs for bilingual-bicultural children, for parents, for handicapped children--the array of choices presents more of a problem for the parent, the teacher, and the program specialist than a lack of choice. Providing these experiences in an economically feasible way, considering both the need for resources to be directed where they will do the most good and to maintain ethnic and economic heterogeneity, is a primary task ahead of us. We do not have all the answers, and many issues of theory, measurement and practice are being debated. In the meantime, the weight of available evidence indicates both the value already achieved and the fuller potential of the early childhood years.

FOOTNOTES

1/ The findings of some follow-up studies of early intervention programs have caused surprise because of a common misinterpretation of the high correlations between IQ scores at age 5 with those of the same individuals at 16 years of age. The factors which promote individual differences at age 5 usually continue to affect development; Bloom pointed out how early in life these factors reliably have an effect, and hence the probable greater plasticity of IQ performance early rather than in later childhood. It does not, however, follow (a) that changes in IQ performance at age 5 induced by one-time experiences will be retained until age 16, (b) that environmental influences on development are negligible after six, or (c) that environmental and constitutional factors cease to interact in influencing individual differences among children. Data showing the immediate effects of early intervention are consistent with Bloom's findings; data showing that IQ gains associated with preschool intervention usually are not retained after the second or third grade are not inconsistent with Bloom's report.

2/ The implication that subcultural differences are deficiences which need compensation has been rejected by many groups and individuals who call for acceptance of the patterns of speech, thinking, and behavior earlier regarded as maladaptive. Others argue that children must learn majority culture skills, but without being humiliated or made to feel as if something is wrong with them and their families in the process. To these educators, the free play type of preschool further disenfranchises minority children whose immediate problems shows up as deficits on measures of reading, writing, arithmetic and problem solving rather than lack of fantasy or creativity.

3/ As Table 4 indicates, Kagan now emphasizes the plasticity of human development, the non-cumulative nature of cognitive growth, the reversibility of early signs of retardation, and the inherent, maturational, genetic aspects of basic functions: "My observations....have led me to reorder the hierarchy of complementary influence that biological and environmental forces exert on cognitive development. Separate maturational factors seem to set the time of emergence of basic functions. Experience can slow down or speed up that emergence by several months or three to four years, but nature will win in the end. The capacity of perceptual analysis, imitation, inference, language, deducation, symbolism, and memory will eventually appear in study form, for each is an inherent competence in the human program." (Kagan and Klein, 1972, p.5).

The data presented as evidence in support of this conclusion seem more simply explained as an artifact of differential test sensitivity at earlier and later ages. For example, the American 5 year olds performed at almost ceiling levels on measures such as the recall test (93% correct) while 5 year old Guatemalan children scored 58% correct. The 8 year olds scored 97% versus 75%; the 11 year olds, 98% versus 85%. Had the American children not approached ceiling at age 5, the Guatemalans might not have seemed to catch up.

There is probably something more substantial to the observations than proving a point by test artifacts, as careful cross-cultural studies of cognition such as Glick's show. However, what seems in order is an investigation of what changes are, and are not irreversible and cumulative, and an investigation of the roles of nutritional, physiological, and environmental factors in determining the limits of growth. Obviously, the child dead of malnutrition or water-borne disease in Guatemala has had environmental, irreversible limits placed on growth. How irreversible are the effects of adolescent malnutrition on the birth weight of the next generation? Of infant kwashiorkor on cognitive growth? Of being reared in environmentally restricted circumstances within a society? Of early insult to a sense of dignity, self-worth and continuing competence to the utilization of cognitive processes?

4/ As previously noted, this consensus is strongly influenced by the reports of Coleman et al. (1966), Jencks et al. (1972), and Moynihan and Mosteller (1972), all based in part on cross-sectional 1965 data from the Equality of Educational Opportunity survey, and the apparent failure of compensatory education programs at preschool, primary, and secondary levels. (See, e.g., Averch et al., 1972).

The value of the Coleman data as a strong test of the relative influence of home and school on child development, and the value of data on Head Start Title I, and Follow Through as strong tests of the influence of compensatory education have been challenged. For example, the range of variation included in the "natural variation" 1965 sample of public schools is not what many educational reformers have insisted is necessary; and problems of implementation have been so great (often for legislative reasons beyond the researcher's control) that the ideas underlying compensatory education intervention have barely been tested in the large public programs. (See, e.g., Datta, 1969; Austin et al., 1972, p.176). Bronfenbrenner's analysis, based on small experimental studies, thus seem most methodologically compelling.

5/ Heber (1971) found a 28 point IQ difference at age four between infants of low income, low IQ mothers who had and had not participated in an intervention program beginning at infancy. The program essentially reproduced an upper middle class milieu for most of the babies' waking hours.

6/ As techniques for measuring infants' capacities improve, it is important to find out what distinctions the newborn is capable and to identify the very early appearance of reliable individual differences. Bower, cited in Lipsitt and Eimas (1972), is said "....to dazzle the field with reports on enormously precocious neonatal feats of visual assimilation and discrimination," such as reaching for, touching and grasping seen objects." (p.5).

7/ Sheldon White (personal communication) has pointed out that between five and seven years there are shifts in many modalities from a child-like to adult modes of perception and thinking, shifts that later reverse with old age. For example, both the child and the old person can hear distinctly a word such as "butter" when it is repeated many times. After seven until old age, "butter" repeated many times loses its identity as a word and is perceived as noise. By this criterion, it may be more meaningful to include the first seven rather than the first six years of life as the early childhood period.

8/ According to Lipsitt and Eimas (1972), Chomsky has recently challenged the belief "....that the acquisition of syntax is virtually complete by 5 years of age" (p.33). This report may presage greater attention to linguistic development between 5 and 10 years of age.

9/ Cited from Bronfenbrenner (1972) unless otherwise noted. (See also Grotberg (1969), Chaw et al., (1972).

10/ In 1969, Cicarelli et al. found that the scholastic achievement, school adjustment and motivation of children who participated in summer 1965, 1966, 1967, and 1968 Head Start programs did not differ from that of post hoc non-participants in the same school district when both groups of children were tested in the first, second and third grade. Differences in scholastic achievement (at norm performance on reading achievement, 50th percentile versus below norm performance, 44th percentile) were found in favor of Head Start full year in first grade. No differences favoring full year participants were found in children tested in the second and third grade.

These findings have been interpreted widely but not unanimously as evidence that Head Start has failed. From my point of view, the study is methodologically weak, but the findings have been replicated so often both before 1969 and since then that the pattern of results probably is reliable. My interpretation of these findings and other similar results is not that Head Start or pre-school has failed. Instead, I conclude that development is a continuous process; that the search for a one-time

treatment is, on theoretical grounds, not sensible, and that we need to seek a diversity of approaches to match the developmental needs of people from pre-conception (e.g., adolescent nutrition) through adulthood. Center-based pre-school programs alone clearly are not enough although children enjoy many of the programs, and for many children, the preschool experience means a safe, healthy, joyous time with friends.

Available data, including the Westinghouse Report, do not justify widespread expansion of center-based preschools using public funds, on the basis that these services are a necessary and sufficient cure for poverty or that they are a developmental right for all children.

Widespread expansion of multiple health, nutrition, parent education, at-home learning and center-based facilities to meet the varied needs of children from different backgrounds does seem worthwhile, particularly if these are continued in whole or in part as the child grows older. Among the many policy tasks remaining are identification of these needs, costing out what mix of resources would optimize outreach and effectiveness, and small-scale tests of how such a differentiated delivery system could be administered. The Head Start Center-with-many-programs is one prototype of such a multiprogram delivery system whose costs and effects will be evaluated.

REFERENCES

Austin, Gilbert R., Rogers, Bruce G., and Halbesser, Henry H., Jr. "The Effectiveness of Summer Compensatory Education: A Review of the Research." Review of Educational Research, Vol. 42, No. 2, Spring 1972, 171-182.

Averch, Harvey A., Carroll, Stephen J., Donaldson, Theodore S., Kiesling, Herbert J., and Pineus, John. How Effective is Schooling? A Critical Review and Synthesis of Research Findings. RAND Corp., Santa Monica, California, 1972.

Barker, Linda A. Preprimary Enrollment October 1971, National Center for Educational Statistics: Office of Education, U.S. Department of Health, Education and Welfare.

Bates, Barbara. Project Head Start, 1969: A Descriptive Report of Programs and Participants, Office of Child Development, U.S. Department of Health, Education and Welfare, 1972.

Beller, E. Kuno. Impact of Early Education on Disadvantaged Children, Temple University, Philadelphia, Pa., 1972.

Birch, Herbert G. and Gussow, Joan Dye. Disadvantaged Children: Health, Nutrition and School Failure. New York: Harcourt, Brace & World, Inc., 1970.

Bissell, Joan S. The Effects of Preschool Programs for Disadvantaged Children. Unpublished doctoral dissertation, Harvard University, 1970.

Bissell, Joan. Summary: Implementation of Planned Variation in Head Start. Vol. I, First Interim Report. May 1971.

Bissell, Joan. Executive Summary. (Untitled, a Summary of Stanford Research Institute Evaluation of Follow Through). Mimeo, 1972.

Blank, M. Cognitive Gains in "Deprived" Children Through Individual Teaching of Language Abstract Thinking. 1967. (ED 019 346)

Bloom, Benjamin S. Stability and Change in Human Characteristics. New York: John Wiley and Sons, 1964.

Bloom, B. S., Davis, A. and Hess, R. Compensatory Education for Cultural Deprivation, New York: Holt, Rinehart & Winston, 1965.

Bogatz, Gerry Ann and Ball, Samuel. The Second Year of Sesame Street: A Continuing Evaluation. Princeton, New Jersey: Educational Testing Service, November 1971.

Bronfenbrenner, Urie. Is Early Intervention Effective? Paper prepared for the Office of Child Development. Mimeo, 1972.

Center for Studies in Evaluation. Preschool and Kindergarten Test Evaluations. Los Angeles: 1971.

Chin, Stanley, Elmore, Pat and Ertle, Vicki. Early Childhood Education, PREP Report No. 37, Washington, D.C.: National Institute of Education, 1972. DHEW No. (OE) 72-9.

Cicarelli, Victor et al. The Impact of Head Start: An Evaluation of the Effects of Head Start on Children's Cognitive and Affective Development. Final Report to the Office of Economic Opportunity, 1969.

Coleman, John S. et al. Equality of Educational Opportunity. Washington: U.S. Government Printing Office, 1966.

Cravioto, J., Dehicardie, E. R., and Birch, H. G., "Nutrition, Growth and Neurointegrative Development: An Experimental and Ecologic Study". Pediatrics, Vol. 38, 1966, pp. 319-372.

Datta, Lois-ellin. A Report on Evaluation Studies of Project Head Start. Paper presented at American Psychological Association Convention, Washington, D.C., 1969.

Datta, Lois-ellin, McHale, Carol and Mitchell, Sandra. Summary of Two Analyses of National Evaluations of the Immediate Changes Associated with Project Head Start. In press.

Deutsch, Martin. Annual Report: Institute for Developmental Studies. 1956.

Dittman, Laura. Children in Head Start, 1970-71. University of Maryland: Institute for Child Study. Grant H-3928-A/H/O. 1972.

Emmerich, W. Disadvantaged Children and Their First School Experiences: Structure and Development of Personal-Social Behavior in Preschool Settings. Princeton, N.Y.: Educational Testing Service, 1971.

Eveloff, H. H. "Some Cognitive and Affective Aspects of Language Development". Child Development, 1971, Vol. 42, No. 6, 1895-1908.

Glass, D. C. (Ed.) Biology and Behavior: Environmental Influences. Rockefeller University, 1968.

Glass, D. C. (Ed.) Biology and Behavior: Genetic Influences. New York: Rockefeller University, 1968.

Gray, Susan W. and Klaus, Rupert A. "An Experimental Preschool Program for Culturally Deprived Children". Child Development, Vol. 36, 1965, 887-898.

Gray, Susan and Klaus, Rupert. "The Early Training Project: A Seventh Year Report". Child Development, Vol. 41, 1970, pp. 909-924.

Grotberg, Edith H. "What Does Research Teach Us About Day Care: For Children Over Three." Children Today, Vol. 1, 1972, 12-17.

Harrington, Michael. The Other America: Poverty in the United States. New York: MacMillan, 1962.

Hechinger, Fred M. Schools: Discipline is Again the Main Concern. New York Times, Sunday, September 2, 1972, E-9.

Hellmuth, J. (Ed.) The Disadvantaged Child: Compensatory Education, A National Debate. Brainbridge Island, Washington: Brunner and Mazel, 1970.

Hodges, W., McCandless, B. and Spicker, H. The Development and Evaluation of a Diagnostically Based Curriculum for Preschool Socioeconomically Deprived Children. Final Report, Office of Economic Opportunity, 1967.

Hooper, M. E. Earned Degrees Conferred: 1969-70 Institutional Data, National Center for Educational Statistics, Office of Education, U.S. Department of Health, Education and Welfare, 1970.

Hunt, J. McVicker. Intelligence and Experience. New York: Ronald Press, 1961.

Jencks, Christopher et al. Inequality: A Reassessment of the Effect of Family and Schooling in America. New York: Basic Books, 1972.

Kagan, Jerome and Klein, Robert E. Cross-Cultural Perspectives on Early Development. Paper presented to the American Association for the Advancement of Science. Washington, D.C. December 1972.

Karnes, Merle B., Teska, James A., and Hodgins, A. S. A Longitudinal Study of Disadvantaged Children Who Participated in Three Different Preschool Programs. Final Report, Office of Economic Opportunity.

Karnes, M., Hodgins, A., Teska, J., and Kirk, S. Research and Development Program on Preschool Disadvantaged Children: Investigations of Classroom and At-Home Interventions. Washington, D.C.: U.S. Department of Health, Education and Welfare, 1969.

Karnes, M. B., Studley, W. M., Wright, W. R. and Hodgins, A. S. "An Approach for Working with Mothers of Disadvantaged Children", Merrill Palmer Quarterly of Behavior and Development. Vol. 14, 1970, pp. 925-35.

Kirschner Associates, Inc. A National Survey of the Impacts of Head Start Centers on Community Institutions. Final Report, Office of Economic Opportunity, May 1970.

Klein, Jenny and Datta, Lois-ellin. The Head Start Planned Variation Study. Office of Child Development, 1971.

Kraft, I., Fuschillo, J. and Herzog, E. "Prelude to School: An Evaluation of an Innercity Preschool Program." Children's Bureau Research Report, No. 3., 1968.

Lazar, Joyce B. and Chapman, Judith E. A Review of the Present Status and Research Needs of Programs to Develop Parenting Skills. OCD Grant No. CB-107, April 1972.

Lipsitt, Lewis P. and Eimas, Peter D. "Developmental Psychology." In Paul H. Mussen and Mark R. Rosenzweig (Eds.), Annual Review of Psychology, Vol. 23, 1972, 1-50.

Light, Richard J. and Smith, Paul V. "Accumulating Evidence: Procedures for Resolving Contradictions Among Different Studies." Harvard Educational Review, Vol. 41, 1971, pp. 429-471.

McClearn, G. E. "Genetics and Behavior Development." In M. L. and L. W. Hoffman (Eds.), Review of Child Development Research. Volume I. New York: Russell Sage Foundation, 1964, 433-480.

Mason, P. and Rice, M. Earned Degrees Conferred 1964-1965. National Center for Educational Statistics, Office of Education, U.S. Department of Health, Education and Welfare, 1967.

Miller, L. and Dyer, J. Experimental Variation in Head Start Curricula: A Comparison of Current Approaches. Mimeo, 1970.

Miller, Louise et al., Four Preschool Programs: Their Dimensions and Effects. Progress Report No. 10, May 1972. Mimeo.

Moore, Raymond S., Moon, Robert D., and Moore, Dennis R., The California Report: Early Schooling for All? Hewitt Research Center, 1972.

Mosteller, Frederick and Moynihan, Daniel P. On Equality of Educational Opportunity: Papers Deriving from the Harvard University Faculty Seminar on the Coleman Report. New York: Random House, 1972.

Moynihan, Daniel P. The Negro Family: The Case for National Action. Washington: U.S. Government Printing Office, 1966.

Palmer, F. H. Early Intellectual Training and School Performance. 1968. (ED 025 324)

Perlman, N. What is Health Start? Profiles of Selected Projects. Urban Institute, April 1972.

Polansky, Norman A., DeSaix, Christine, and Sharlin, Shlomo. The Faces of Child Neglect in Appalachia. Paper presented at the 1972 National Conference on Social Welfare.

Prescott, Elizabeth. Day Care as a Child Learning Environment. National Association for the Education of Young Children. 1972.

Research Triangle Institute. A Report on Two National Samples of Head Start Classes: Some Aspects of Child Development of Participants in Full Year 1967-68 and 1968-69 Programs, Final Report, Contract HEW-OS-70-207. July 1972.

Rohwrer, William D., Jr. "Prime Time for Education: Early Childhood or Adolescence?" Harvard Educational Review, Vol. 41, 1971, 316-341.

Ryan, Sally (Ed.) Longitudinal Studies of Early Child Development Programs, Office of Child Development, in press.

Schaefer, Earl S. "Parents as Educators: Evidence for Cross-Sectional, Longitudinal, and Intervention Research." Young Children, Vol. 27, No. 4, April 1972, 227-239.

Schaefer, Earl S. "The Need for Early and Continuing Education", in Dennenberg, V. (Ed.), Education of the Infant and Young Child. New York: Academic Press, 1971.

Schloss, S. Nursery-Kindergarten Enrollment of Children Under Six: October 1965. National Center for Education Statistics, Office of Education, U.S. Department of Health, Education and Welfare, 1966.

Shipman, Virginia C., et al. Disadvantaged Children and Their First School Experiences: Structure and Development of Cognitive Competence and Styles Prior to School Entry. Princeton, N.J.: Educational Testing Service, 1971.

Sigel, I. E. The Development of Classificatory Skills in Young Children: A Training Program. Mimeo, undated.

Singer, Jerome L. and Singer, Dorothy G. "Personality." In Paul H. Mussen and Mark R. Rosenzweig (Eds.), Annual Review of Psychology, Vol. 23, 1972, 375-412.

Skeels, H. M. "Some Iowa Studies of the Mental Growth of Children in Relation to Differentials of the Environment: A Summary." In G. M. Whipple, (Ed.), Intelligence: Its Nature and Nurture. 39th Yearbook, Part II, National Society for the Study of Education, 1940, 281-308.

Sowder, Barbara J. and Lazar, Joyce B. Research Problems and Issues in the Area of Socialization. Washington, D.C.: Social Research Group, George Washington University. Report, grant OCD-CB-107. September, 1972.

Stanford Research Institute. Implementation of Planned Variation in Head Start. May 1971.

Stearns, M. S. Report on Preschool Programs: The Effects of Preschool Programs on Disadvantaged Children and Their Families. Final Report, Contract No. HEW-OS-71-16, 1971.

Systems Development Corporation. Effects of Different Head Start Programs on Children of Different Characteristics: Report on Analysis of Data from 1966-67 and 1967-68 National Evaluation. Final Report, Contract HEW-OS-70-168. June 1972.

Valentine, Charles A. "Models and Muddles Concerning Culture and Inequality: A Reply to Critics." Harvard Educational Reviews, Vol. 42, No. 1, February 1972, 97-101.

Walker, Deborah K. Socio-emotional Measures for Preschool and Kindergarten: A Critique. Qualifying paper, Harvard Graduate School of Education, August 1972.

Walker, Deborah et al. The Quality of the Head Start Planned Variation Data. Cambridge, Mass.: Huron Institute, 1973.

Weikart, D. P. Comparative Study of Three Preschool Curricula. Paper presented at SRCD meeting, 1969.

Weikart, David,et al. Longitudinal Results of the Ypsilanti Perry Preschool Project. August 1970.

Werner, Emmy E., Bierman, Jessie M. and French, Fern E. The Children of Kauai. Honolulu: University of Hawaii Press, 1971.

White, S. H. "Some General Outlines of the Matrix of Developmental Change Between 5 and 7 Years." Bulletin of the Orton Society, 1970, 20, 41-57.

Willerman, L., Broman, S. H. and Fiedler, M. "Infant Development, Preschool IQ, and Social Class." Child Development, Vol. 41, 1970, 69-77.

Winick, Myron. "Nutrition and Intellectual Development in Children." In Nutrition and Intellectual Growth in Children. Washington: Association for Childhood Education International, 1969.

Yarrow, Leon J. and Pedersen, Frank A. "Attachment: Its Origins and Course." Young Children, Vol. 27, No. 5, June 1972, 302-312.